

Tech Talk

Help! Help! My lights don't work, my gauges are out, and I'm thinking about trading this Mustang for a Camaro — or a Toyota!!!

Let's talk about lights and gauges. To repair electrical systems, you should have a multimeter, which costs \$10-\$30, 2 small jumper leads, and on the really big jobs an electrical schematic diagram also. Here are some terms you will run across:

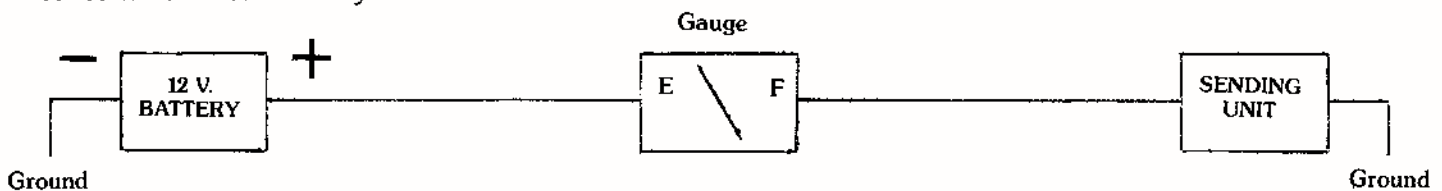
- AMP — unit of electrical current
- VOLT — unit of electrical force or pressure
- OHM — unit of resistance to electricity

Here are 2 equations to worry about:

- $AMPS \times VOLTS = WATTS$ (A watt is a unit of electrical power)
- 1 VOLT pushes 1 AMP through 1 OHM of resistance

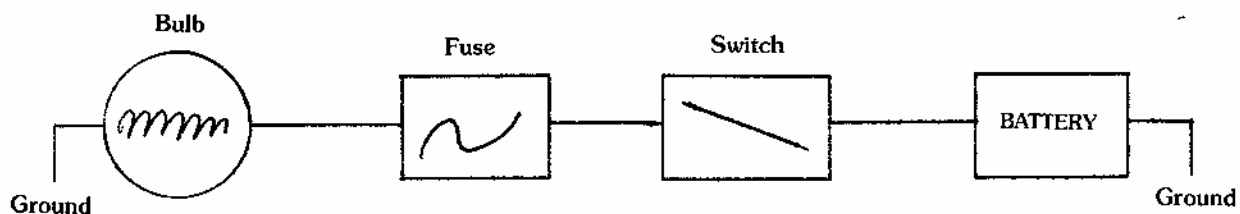
Let's start with the gauges.

In a car, a gauge works on 12 volts DC (direct current). Usually gauges have no fuse. The gauge is wired in series which means the system looks like this.



All gauges have a power source (battery) and a ground source (sending unit). If the fuel gauge in your car always reads empty, look under your car at the gas tank, unplug the wire going into the tank, attach your jumper lead to the end of the wire that goes toward the front of the car, and attach the other end of the jumper to a clean metal surface on the chassis. Now turn your ignition key to on. Does the gauge now read full? If so, have your tank sending unit replaced. All the warning lights and gauges can be tested in the same manner. On some older cars whose engines have been exchanged, the wrong sending unit may have been installed. Check to see that yours is correct.

Light systems consist of a bulb, wire, fuse, switch and ground, like this:



If a light is inoperative, try a new bulb first. You can also check the bulb with the resistance section of your multimeter. Next, make sure the fuse is good. This can also be checked with the resistance section of the meter. Now, if you still haven't found the problem, let's find a hot wire somewhere and use your jumper wire. Attach the wire to the switch, turn it on and off. Move the wire beyond the switch. If the light now works properly, replace the switch.

Using a Multimeter

Testing a battery for voltage. Put the selector on volts. The positive lead (red) goes on the + side battery terminal and the negative lead (black) goes on the - battery terminal. Be sure to have the meter set to at least the 12 volt or greater scale or the needle will go all the way over and you won't be able to read it. You can search for a hot wire by putting the + lead on the wire that you're checking and the - lead on a ground source (car chassis).

Testing for a complete circuit. Put the selector on ohms. (). Take light bulb that you suspect to be defective, and put one lead on the contact bottom center of the bulb. The other lead goes on the outer metal casing of the bulb where the mounting pegs are located. Your meter should read 0 or near 0 if the bulb is good.

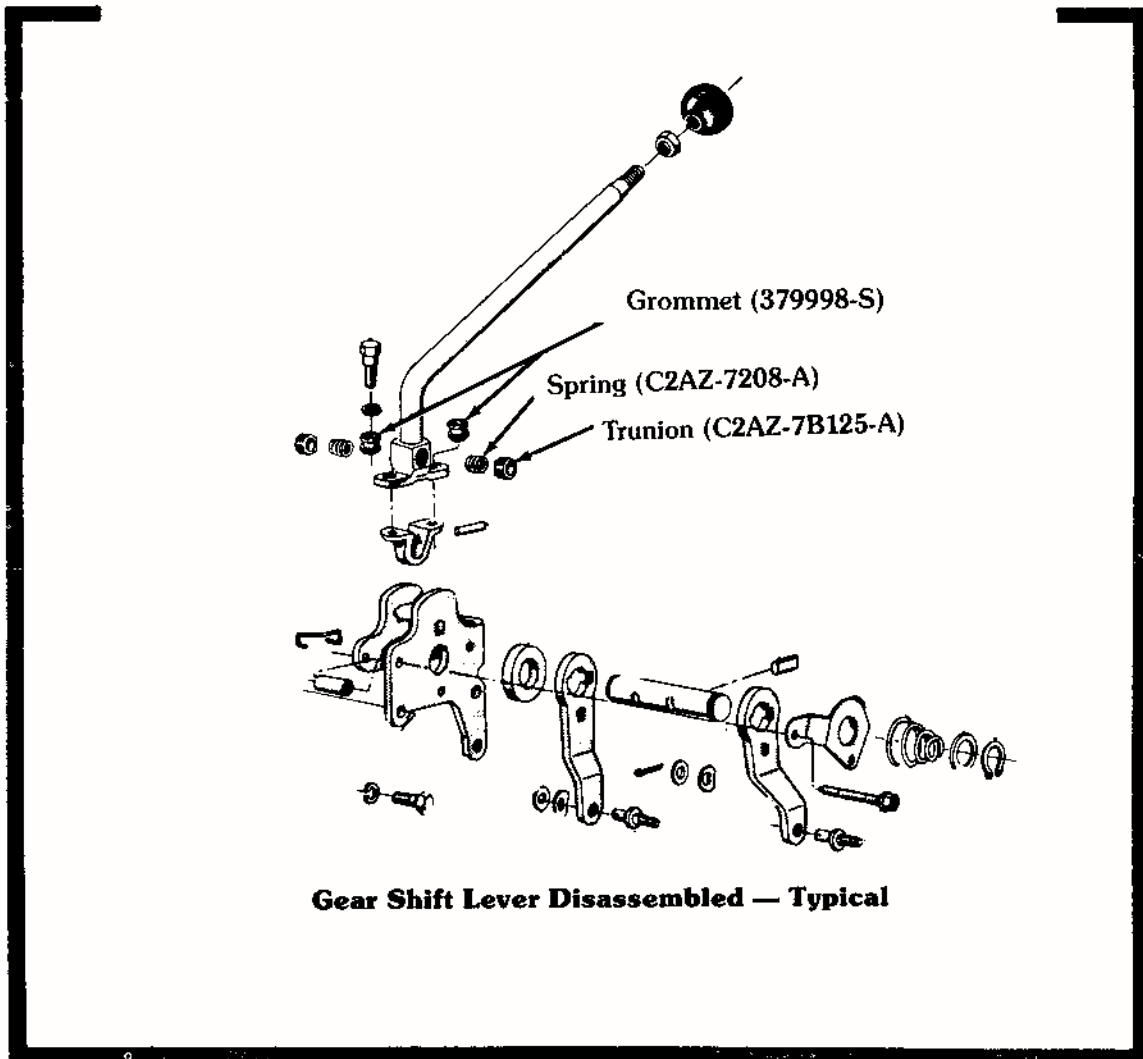
MUSTANG SHIFTER REPAIR

Do you feel your early Mustang 3 or 4 speed shifter is getting sort of sloppy?? Maybe it's time for a rebuild. There are two areas where the shifter can loosen up and cause havoc. One area is where the shifter (stick) is bolted to the transmission mounted control mechanism. There are suppose to be rubber grommets going thru the mounting holes in the shifter base at point A (see diagram). These grommets can crack or deteriorate leaving the shifter mechanism quite loose. Replacement with new grommets (pt. #379998-S) is the answer.

The second area is where the holes on the side of the shifter base are located (see diagram-point B). Within these holes, depending on the type of

shifter, you will find either a button with a rubber sleeve around it or a trunion with a spring inside. These items serve two purposes: 1) they keep the shifter taut within the control mechanism and, 2) they act as pivot points during shifting. Problems arise when these pieces fall out, wear out, or break. Replacement, when necessary, is a simple remedy that will tighten up a loose shifter and help prevent side wear of the shifter base. If possible, and there is no rubber sleeve to wear out. Part numbers for the spring and trunion are C2AZ-7208-A and C2AZ-7B125-A respectively.

This work can be done from within your car and takes only a few minutes.



Gear Shift Lever Disassembled — Typical